

Friend or confederate: Conversation and a concurrent visuomotor task

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Recent studies have shown that conversation can impair the performance of a simultaneous visuomotor task and have attributed this to the amodal attentional demands of speech planning in language production (Almor, 2008). Therefore, under an interactive model of language production in which planning occurs concurrently with speaking, there should be no noticeable differences in this interference between speaking (which involves ongoing speech planning) and preparing to speak. In addition, if speech planning is the true attention-draining culprit, then the degree of difficulty of a conversation (and thus the degree of difficulty of planning an utterance) should impact performance on the secondary task. According to Pickering and Garrod (2004), the difficulty of conversation is related to the degree of alignment between the interlocutors at different linguistic levels, likely through ameliorating the cognitive demands of speech planning. We therefore predicted that conversation between intimate interlocutors (who are already aligned at various linguistic levels) would be less demanding than conversation between strangers (i.e., interlocutors not yet aligned) and should thus pose less interference on a concurrent visuomotor task. We further predicted that this difference mainly occurs during speech planning.

We conducted two experiments during which participants performed a smooth pursuit tracking task while conversing remotely via microphones and headsets. In Experiment 1, the conversation partner was a friend the participant had known for over a year ($M = 5.4$ yrs.). In Experiment 2, the conversation partner was a confederate the participant had never met prior to the experiment. Conversations lasted twenty minutes and were unconstrained. Conversational data were segmented in the following way: Talk (segments where the participant speaks), Listen (partner speaks), Overlap (both speaking simultaneously), Prepare (silence following a Listen segment and preceding a Talk segment), Pause (silence between Talk segments), and Control (visuomotor task only).

Performance on the smooth pursuit task during the various segments is reported in Table 1. In Experiment 1, Talk segments were more detrimental to the concurrent task than Listen segments ($t(18) = 3.5, p < .01$), and interestingly there was no significant difference between Pause and Talk segments ($t(18) < 1$). In Experiment 2, Talk segments were once again more detrimental to the visuomotor task than Listen segments ($t(20) = 5.68, p < .001$), Pause and Talk did not differ significantly ($t(20) = 1.5, p > .05$), and Prepare segments were more detrimental than Listen ($t(20) = 2.93, p < .01$). A between subject analysis of the data from both experiments showed that there was a significant Partner by Conversation interaction ($F(5, 35) = 2.39, p < .05$), characterized by worse performance during Talk and Pause segments when conversing with a stranger than when conversing with a friend.

These results point to the act of composing an utterance as the aspect causing the most interference on concurrent processes. Also, the level of intimacy between conversation partners crucially affects performance. When speaking with strangers the cognitive demands of speech planning require more attentional resources than when speaking with a friend.

References

- Almor, A. (2008). Why does language interfere with vision-based tasks? *Experimental Psychology*, *55*, 260-268.
 Pickering, M.J., & Garrod, S. (2004). Toward a mechanistic psychology of dialogue. *Behavioral and Brain Sciences*, *27*, 1-57.

Table 1

Average distances in pixels to target by conversational condition, standard errors of the mean in parentheses.

	Talk	Listen	Overlap	Prepare	Pause	Control
E1	41.38 (3.14)	38.14 (2.62)	39.26 (3.09)	38.99 (2.85)	42.52 (3.61)	40.41 (2.87)
E2	44.34 (1.98)	37.6 (1.5)	41.91 (1.95)	40.44 (1.84)	46.13 (2.39)	40.47 (1.57)